

**Before the Federal Communications Commission  
Washington, D.C. 20554**

In the Matters of:

Use of Spectrum Bands Above 24 GHz  
For Mobile Radio Services

)  
) GN Docket No. 14-177  
)  
)

Establishing a More Flexible Framework to  
Facilitate Satellite Operations in  
the 27.5-28.35 GHz and 37.5-40 GHz Bands

)  
) IB Docket No. 15-256  
)  
)

Petition for Rulemaking of the Fixed Wireless  
Communications Coalition to Create Service Rules  
for the 42-43.5 GHz Band

)  
) RM Docket No. 11664  
)  
)

Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101  
To Establish Uniform License Renewal,  
Discontinuance of Operation, and Geographic Partitioning  
and Spectrum Disaggregation Rules and Policies  
for Certain Wireless Radio Services

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)  
) WT Docket No. 10-112  
)  
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)

Allocation and Designation of Spectrum for  
Fixed-Satellite Services in the 37.5-38.5 GHz,  
40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands;  
Allocation of Spectrum to Upgrade Fixed and Mobile  
Allocations in the 40.5-42.5 GHz Frequency Band;  
Allocation of Spectrum in the 46.9-47.0 GHz Frequency  
Band for Wireless Services; and Allocation of Spectrum  
in the 37.0- 38.0 GHz and 40.0-40.5 GHz for  
Government Operations

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) IB Docket No. 97-95  
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To: Office of the Secretary  
Federal Communications Commission  
Washington, DC 20554

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September 30, 2016

Dear FCC Commissioners,

Spectrum Frontiers Proceeding is being represented as an unqualified good, but it is not. It will do great harm to human health and the environment.

Please halt implementation of Spectrum Frontiers. There has been no NEPA review of the environmental and human health impacts of moving forward with 5G. The FCC has put the cart before the horse in promulgating rules for 5G without first studying the safety of 5G for humans and the environment. There is consensus within the scientific community that the existing FCC limits for wireless radiation do not protect the population from biological effects ([www.EMFscientist.org](http://www.EMFscientist.org))

The National Toxicology Program recently release results showing that radiofrequency radiation (RFR) can indeed both break DNA and cause cancer. A replicated European study has found that RFR is also a cancer promoter (<http://ehtrust.org/science/facts-national-toxicology-program-cellphone-rat-cancer-study/>). Furthermore, the literature on RFR in the very high frequency bands required for 5G document DNA breakages, serious cellular resonance effects, and other detrimental metabolic effects ([http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec15\\_2012\\_Evidence\\_Disruption\\_Modulation.pdf](http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec15_2012_Evidence_Disruption_Modulation.pdf) and [http://www.stopglobalwifi/documents/2001\\_kositsky\\_et\\_al.\\_-\\_ussr\\_review.pdf](http://www.stopglobalwifi/documents/2001_kositsky_et_al._-_ussr_review.pdf)).

Non-industry funded studies have consistently found links between RFR and various negative biological effects ([www.bioinitiative.org](http://www.bioinitiative.org)). They include serious neurological, cardiac, and metabolic effects, as well as DNA breakage which can lead to cancer and genetic defects (<http://www.mainecoalitiontostopsmartmeters.org/?p=1469>).

Studies, including the National Toxicology Program studies, have shown wireless to be a dangerous technology and 5G, according to Chairman Wheeler's own comments, is an infrastructure intensive technology. So, invest in safe, wired infrastructure instead of spending a lot of money to saturate entire communities with hazardous radiation. The "cool" factor is not worth the peril.

It is time for the FCC to act in a precautionary way and stop promoting wireless, especially especially Spectrum Frontiers and WiFi. WiFi is already causing radiofrequency sickness in children and adults. The data suggests 5G is likely to be even more dangerous. No one should be forced to be exposed to a carcinogen when connectivity can be achieved in safer ways. You should be completing the process of establishing meaningful biologically-based population protective RF safety limits instead of forcing people to be exposed to more RF radiation.

There are effects far beyond cancer. My family has had the misfortune to experience them firsthand. It has been a nightmare. Not only is the FCC abdicating its responsibilities by not establishing meaningful biologically protective RF safety limits before promoting further RF exposures, it is violating human rights. Please read "Wireless Technology Violates Human Rights," attached and at <http://www.electricalpollution.com/documents/WirelessViolatesHumanRights2016.pdf>. If you continue to implement Spectrum Frontiers, which will increase exposure to a carcinogen and pollutant with potent harmful biological activity, you will also be violating human rights and the Nuremberg Code of Ethics.

Recent scientific publications look specifically at causality, such as M.L. Pall in “*Microwave Frequency Electromagnetic Fields (EMFs) Produce Widespread Neuropsychiatric Effects Including Depression*” (J Chem Neuroanat. 2015 Aug 20; <http://www.sciencedirect.com/science/article/pii/S0891061815000599>). It discusses the causal relationship between exposure to radiation from wireless technology and neuropsychiatric effects. Mechanisms of action are also discussed. It is likely the rampant proliferation of wireless radiation (to which 5G would add greatly) is an important factor behind the marked increase in mass killings due to the detrimental psychiatric effects it can have. Many of the perpetrators were technology addicts and thus highly exposed to RF radiation. Prudence and caution would dictate a halt to the proliferation of wireless technology.

A recent study by Yakymenko, et al., 2015, *Oxidative Mechanisms of Biological Activity of Low-intensity Radiofrequency Radiation* finds in 93 of 100 reviewed studies a wide pathogenic potential of the induced Reactive Oxygen Species (ROS) and their involvement in cell signaling pathways explains a range of biological/health effects of low intensity RF radiation, which include both cancer and non-cancer pathologies. Their concluding analysis demonstrates low-intensity RF radiation is an impressive oxidative agent for living cells with a high pathogenic potential and that the oxidative stress induced by RF radiation exposure should be recognized as one of the primary mechanisms of the biological activity of this kind of radiation (<http://www.mainecoalitiontostopsmartmeters.org/wp-content/uploads/2015/07/Yakymenko-et-al-2015.pdf>).

Not only is the radiation utilized by wireless technology dangerous to people, it is dangerous to the environment. Therefore, the need for a NEPA review is triggered.

### **FCC must complete a NEPA review and EIS prior to implementing 5G**

The potential environmental and human health hazards from 5G necessitates a comprehensive NEPA review [*Envtl. Def. Fund v. Tenn. Valley Auth.*, 468 F.2d 1164, 1174 (6th Cir. 1972)] and, specifically, a formal Environmental Impact Statement (EIS). The EIS should include a full review of environmental effects, as well as human health and safety. The FCC has an obligation to evaluate whether “*services or capabilities are essential to public health, safety, or in the public interest*” (H.R. Report No. 104-204, p. 94) and so must protect the public from possible harm caused by radiofrequency radiation.

The FCC is not entitled to essentially disregard comments that do not provide global cost-benefit analysis (*Scenic Hudson v. Federal Power Commission*). The Commission has an affirmative duty to inquire into and consider all relevant facts. The FCC must use government resources to perform the relevant analysis. The FCC should request the EPA use its National Risk Management Research Laboratory resources and experts to conduct all cost analyses necessary.

This proposal also triggers the need for a Memoranda of Understanding (MOU) with U.S. Fish and Wildlife Service under Executive Order 13186 concerning effects on migratory birds.

### **U.S. Department of Interior States: Current Radiation Standards Inapplicable**

On February 7, 2014, the U.S. Department of Interior (DOI) stated, “*the electromagnetic radiation standards used by the Federal Communications Commission (FCC) continue to be based on thermal heating, a criterion now nearly 30 years out of date and inapplicable today,*” in reference to the current limits governing radiation utilized by WiFi. The DOI letter discusses a number of studies in which birds appear harmed by low-level RF radiation associated with cell towers and other wireless technologies ([http://www.ntia.doc.gov/files/ntia/us\\_doi\\_comments.pdf](http://www.ntia.doc.gov/files/ntia/us_doi_comments.pdf)). Furthermore, DOI required FirstNet to undergo a comprehensive NEPA review and planning program. Implementation of 5G, which will

**have similar widespread impacts, requires a NEPA review as well.**

### **RF radiation kills and damages trees**

Trees are being killed and damaged across the U.S. and world-wide even without full-scale implementation of 5G. RF radiation is being implicated as the cause. Several studies show the very serious effects that RF radiation has on the health of trees. Trees are essential to the welfare of the global environment and the continuation of the human race. Decimation of the Amazon rainforest by direct human actions has been oft-cited as endangering the global environment, the FCC should not be moving forward with implementing a technology, 5G wireless technology, that will hasten the RF caused death of our urban and rural forests. Please read the following papers to see the toll RF is already taking on trees. We cannot afford additional forest die-off. Large mature trees are being seriously damaged and killed, this damage will take 50 years or more to repair.

- Radiofrequency radiation injures trees around mobile phone base stations [https://www.researchgate.net/publication/306435017\\_Radiofrequency\\_radiation\\_injures\\_trees\\_around\\_mobile\\_phone\\_base\\_stations](https://www.researchgate.net/publication/306435017_Radiofrequency_radiation_injures_trees_around_mobile_phone_base_stations)
- Adverse Influence of Radio Frequency Background on Trembling Aspen Seedlings: Preliminary Observations <https://www.hindawi.com/journals/ijfr/2010/836278/>
- Tree damage in the vicinity of mobile phone base stations <http://kompetenzinitiative.net/KIT/wp-content/uploads/2016/06/Tree-damages-in-the-vicinity-of-mobile-phone-base-stations.pdf>
- The trees make it easy to recognize the effects of RF-EMF. Examples of tree damage: <http://kompetenzinitiative.net/KIT/wp-content/uploads/2016/09/Trees-in-Bamberg-and-Hallstadt-Dokumentation-2006-2016.pdf>

The damage to trees is not theoretical. We are seeing it on our farm now. We have seen it in the city for years, but now we are seeing it in the country as well, on a widespread basis.



July 24, 2016  
Note thinness in tree on right and bare spot developing between trees (both cottonwoods)



August 9, 2016  
Damage progressing quickly



September 12, 2016  
More leaves lost. No sign of healthy fall leaf color so fall is not the cause.





July 24, 2016

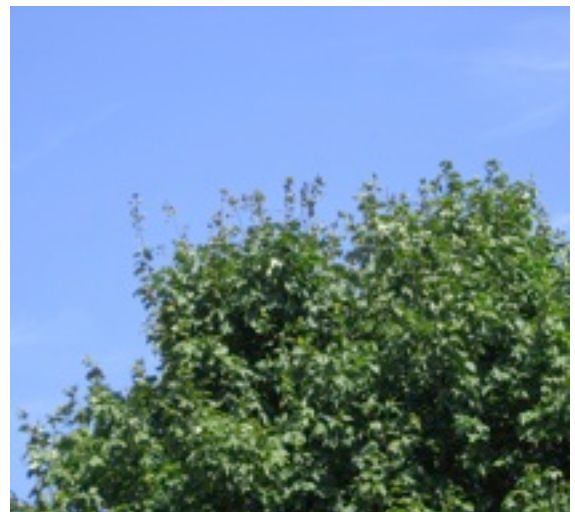
These cottonwoods trees began exhibiting damage similar to the trees above in 2015. Most of them greened up this spring, then had the leaves die and drop. Two still retain leaves low down. Others are completely dead.

As you can see the damage to trees is progressing quickly to death. Balimori discusses the fact that *"White and black poplars (Populus sp.) and willows (Salix sp.) are more sensitive. There may be a special sensitivity of this family exists or it could be due to their ecological characteristics forcing them to live near water, and thus electric conductivity."* Certainly the trees that are worst off in our area are willows and cottonwoods and they are growing in areas that are wet, but I have seen trees of all types exhibiting damage. Please think of the future. We cannot live without a healthy tree population. We rely on them for the very oxygen we breathe. **No technology is worth endangering something as essential as our source of oxygen.**

September 18, 2016  
Notice uneven leaf drop, unhealthy green, and absence of fall color. Characteristic of RF damage



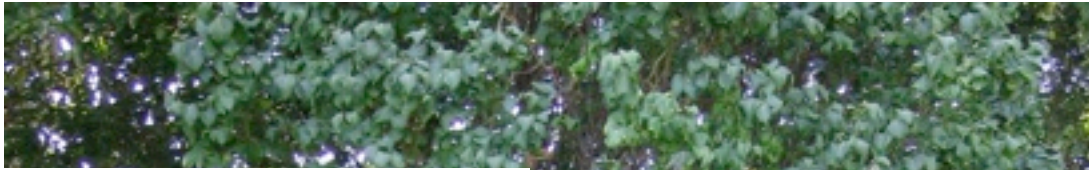
Notice necrotic lesions and off color characteristic of RF leaf damage. No normal fall color present, despite on-going leaf drop.



Note the small damaged leaves across the top of the tree. Trees of all different species around our yard are demonstrating this damage. Also mentioned in the aforementioned papers. We have no transmitters so all RF from outside sources.



Lilac showing marked one sided damage. Signal appears to be coming from a WiFi tower on a hill about a mile away.



**Green lilac nearly touching green side of affected lilac. The bases are only 8 ft apart.  
0.6 microwatts/m<sup>2</sup> max  
no audible or visible spikes in over 5 minutes**



**Green side of lilac  
2.8 microwatts/m<sup>2</sup> max  
only periodic audible or visible spikes**

**Bare side of lilac  
83.5 microwatts/m<sup>2</sup> max  
audible and visible spikes every 9 seconds**







39 microwatts/m<sup>2</sup> max  
Bare spot pointing S/SW  
Line of sight to cell tower  
6 miles away

10 microwatts/m<sup>2</sup> max  
Measured near bottom of  
bare spot which points N



2.8 microwatts/m<sup>2</sup> max  
In first whorl where still has needles



Please read the following reports which demonstrate that wireless technology is causing serious harm to wildlife:

- “The Report on Possible Impacts of Communication Towers on Wildlife Including Birds and Bees” commissioned on 30th August 2010 by the Ministry of Environment and Forest, Government of India [http://www.moef.nic.in/downloads/public-information/final\\_mobile\\_towers\\_report.pdf](http://www.moef.nic.in/downloads/public-information/final_mobile_towers_report.pdf)
- “Impacts of radio-frequency electromagnetic field (RF-EMF) from cell phone towers and wireless devices on biosystem and ecosystem – a review” [http://www.biolmedonline.com/Articles/Vol4\\_4\\_2012/Vol4\\_4\\_202-216\\_BM-8.pdf](http://www.biolmedonline.com/Articles/Vol4_4_2012/Vol4_4_202-216_BM-8.pdf)
- Balmori, A. “Electromagnetic pollution from phone masts. Effects on wildlife,” Pathophysiology (2009), doi:10.1016/j.pathophys.2009.01.007 <http://www.ncbi.nlm.nih.gov/pubmed/19264463>

The Supreme Court of India ordered cell towers removed from schools, colleges, hospitals and playgrounds in Rajasthan because of radiation being “hazardous to life.” The court’s amazing 200+ page decision thoroughly reviews the worldwide evidence that cell towers are harming human beings and wildlife (<http://timesofindia.indiatimes.com/city/jaipur/No-mobile-towers-near-schools-hospitals-directs-Rajasthan-HC/articleshow/17399705.cms>).

On July 5, 2013 the Supreme Court of India upheld this decision.

Steps for minimizing exposure to RF can be found at [www.electricalpollution.com](http://www.electricalpollution.com) on the Solutions page. They could be used to make the United States one of the healthiest nations on the planet.

Don't unleash a dangerous environmental pollutant on your friends, family, and, indeed, the whole country. Protect your family, friends, and the country - halt implementation of Spectrum Frontiers. Help bring wired broadband to everyone by placing a tariff on the use of wireless and use the proceeds to fund dedicated wired broadband internet. Be on the right side of history.

Sincerely,

Catherine Kleiber